MDOT Michigan Department of Transportation

OFFICE MEMORANDUM

DATE: November 20, 2003

TO: Region Engineers
Region Delivery Engineers
Region Development Engineers
TSC Managers
Resident/Project Engineers
Region Construction Engineers

FROM: Larry E. Tibbits
Chief Operations Officer

John C. Friend
Engineer of Delivery

SUBJECT: Bureau of Highway Instructional Memorandum 2003 - 17
Upgrading Pavement Markings on Future Pavement Construction/Reconstruction Projects

The 2004 Appropriations Bill, Enrolled Senate Bill No. 265, Section 611, requires that the Department, "use high-quality pavement marking materials for all state trunkline projects with a design life of ten years or greater." We have reached consensus with industry that a high quality marking system is one providing acceptable visibility for a period of at least three years with no interim reapplication. At the October 3, 2003, meeting of the Engineering Operations Committee, the following recommendations were approved to comply with this requirement.

AFFECTED PROJECTS

The upgrading of pavement markings will apply to all new construction or reconstruction projects for concrete pavements, including unbonded concrete overlays and all new or reconstructed full depth bituminous pavements. Not included are rehabilitation fixes which have a design life in excess of ten years, but also have scheduled maintenance operations in the first two to five years. These maintenance activities would destroy or remove long term pavement markings. All fix types with a design life less than ten years are also not included.

HIGH-QUALITY MARKING OPTIONS

The following pavement marking systems are adequate to provide a life-cycle of three to five years with no yearly remarking, provided the markings are properly applied initially.

Option 1

When the freeway rumble strip can be placed within four inches of the lane edge the following marking system will provide a three year life and wet-night retro reflectivity in the edge line.

Lane Lines and Skip Lines – Four inch wide lines using polyurea marking material in a recessed groove.

Edge Lines – Six inch wide waterborne paint or spray thermoplastic placed in the rumble strip (only when the rumble strip is within four inches of the edge of the lane). If waterborne paint is used, it will require two initial applications on new pavement surfaces.

Option 2

When a rumble strip is not present or not within four inches of the edge of the lane, the following marking system will provide a three year life.

Lane Lines and Skip Lines – Four inch wide lines using polyurea marking material in a recessed groove.

Edge Lines – Six inch wide lines using polyurea marking material in a recessed groove.

FUNDING

The funds for upgrading the markings on all affected projects, starting with the 2004 program, will come from project funds. No additional money is available to fund this change. The following is an estimate of the additional funding required for a two lane, two-way pavement. Roadways with more lanes may also be estimated from this information.

CURRENT SYSTEMS

Material	Cost/ft.	Cost/mile	Total Cost/mile
4" waterborne, skip line*	$.10	$132.00	$1,716.00
6" waterborne, edge line	$.15	$1584.00	
Metro Region and Urban Areas			
4" spray thermoplastic, skip line	$.20	$264.00	$3,432.00
6" spray thermoplastic, edge line	$.30	$3,168.00	

*Estimated at 1,320 ft. of skip line per mile

PROPOSED SYSTEMS

OPTION 1			
Material	**Cost/ft.**	**Cost/mile**	**Total Cost/mile**
4" polyurea, recessed skip line	$.90	$1,188.00	$3,300.00
6" waterborne, edge line in the rumble (2 applications)	$.20	$2,112.00	
Metro Region and Urban Areas			
4" polyurea, recessed skip lines	$.90	$1,188.00	$4,356.00
6" spray thermoplastic, edge line in the rumble	$.30	$3,168.00	
OPTION 2			
Material	**Cost/ft.**	**Cost/mile**	**Total Cost/mile**
4" polyurea, recessed, skip line	$.90	$1,188.00	$13,650.00
6" polyurea (recessed), edge line	$1.18	$12,460.00	

SPECIFICATIONS

The specifications for waterborne paint and spray thermoplastic marking materials are available in the 2003 Standards Specifications for Construction. Special Provisions and plan details for polyurea, cutting the recessing grooves and placing the rumble strips within four inches of the lane line, may be obtained by contacting the Pavement Marking Engineer, 517-373-3340.

On applicable projects already under contract, a contract modification must be prepared to upgrade the marking system as described above. For further assistance, contact Lansing Traffic and Safety at 517-373-3340 or 517-335-2625.

EVALUATION

All applications of these high quality marking systems will be evaluated for long-term performance. It is imperative the high-quality marking systems not be restriped under the annual pavement marking program. Please provide the locations of all high-quality marking systems to the Region/TSC pavement marking liaison and the Pavement Marking Engineer in the Lansing Traffic and Safety Support Area. The Pavement Marking Engineer will monitor the performance yearly in the statewide retro reflectivity measurement program and report annually. It is requested that the respective TSC staff visually track the performance on a six-month cycle and report any notable degradation, delamination or material failure to the Pavement Marking Engineer.

Chief Operations Officer

Engineer of Delivery

BOHD:T&S:JDC:bjh
Index: Pavement Marking

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